

SEQUENCE LISTING

<110> Nakamura, Yusuke
Furukawa, Yoichi

<120> METHOD FOR DIAGNOSING HEPATOCELLULAR
CARCINOMAS

<130> 082368-007600US

<150> PCT/JP2004/013722

<151> 2004-09-14

<150> US 60/505,632

<151> 2003-09-24

<160> 28

<170> FastSEQ for Windows Version 4.0

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<212> DNA

<213> Homo sapiens

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<221> CDS

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gccctggccg cc atg tgc tcc cag ctc tgg ttc ctg acg gac cgg cgc atc 171
Met Cys Ser Gln Leu Trp Phe Leu Thr Asp Arg Arg Ile
1 5 10

cgc gag gac tac ccg cag gtg cag atc ctg cgc gcc ctc cgg cag cgc 219
Arg Glu Asp Tyr Pro Gln Val Gln Ile Leu Arg Ala Leu Arg Gln Arg
15 20 25

tgc tcc gag cag gac gtg cgc ttc cgg gcg gtg ctt atg gac cag atc 267
Cys Ser Glu Gln Asp Val Arg Phe Arg Ala Val Leu Met Asp Gln Ile
30 35 40 45

gcc gtc acc atc gtc ggc ggc cac ctc ggc ctc cag cta aac cag aag 315
Ala Val Thr Ile Val Gly Gly His Leu Gly Leu Gln Leu Asn Gln Lys
50 55 60

gcc ctc acc act ttc ccg gat gtg gtg ctt gta cgg gta ccc aca ccc 363
Ala Leu Thr Thr Phe Pro Asp Val Val Leu Val Arg Val Pro Thr Pro
65 70 75

tca gtg cag tca gac agt gac atc act gtc ctg cga cac ctg gag aag 411
Ser Val Gln Ser Asp Ser Asp Ile Thr Val Leu Arg His Leu Glu Lys
80 85 90

ctg ggc tgc cgg ttg gtc aat cgc cca cag agc atc tta aat tgc atc 459
Leu Gly Cys Arg Leu Val Asn Arg Pro Gln Ser Ile Leu Asn Cys Ile
95 100 105

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| aac | aaa | ttc | tgg | acg | ttc | caa | gaa | ctg | gct | gga | cat | ggg | gtc | ccc | atg | 507 |
| Asn | Lys | Phe | Trp | Thr | Phe | Gln | Glu | Leu | Ala | Gly | His | Gly | Val | Pro | Met | |
| 110 | | | | | 115 | | | | | 120 | | | | | 125 | |
| cca | gac | acc | ttc | tcc | tat | ggg | ggg | cat | gaa | gac | ttt | tca | aaa | atg | att | 555 |
| Pro | Asp | Thr | Phe | Ser | Tyr | Gly | Gly | His | Glu | Asp | Phe | Ser | Lys | Met | Ile | |
| | | | | 130 | | | | | 135 | | | | | 140 | | |
| gat | gaa | gct | gag | ccc | ctg | ggc | tac | cca | gtc | gtg | gtg | aag | agc | aca | cga | 603 |
| Asp | Glu | Ala | Glu | Pro | Leu | Gly | Tyr | Pro | Val | Val | Val | Lys | Ser | Thr | Arg | |
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| ggc | cac | cgg | gga | aaa | gct | gtt | ttt | ctg | gca | aga | gat | aaa | cat | cac | ctc | 651 |
| Gly | His | Arg | Gly | Lys | Ala | Val | Phe | Leu | Ala | Arg | Asp | Lys | His | His | Leu | |
| | | 160 | | | | | 165 | | | | | 170 | | | | |
| tct | gac | atc | tgc | cat | ctg | atc | cgc | cac | gat | gtg | ccc | tac | ctg | ttc | cag | 699 |
| Ser | Asp | Ile | Cys | His | Leu | Ile | Arg | His | Asp | Val | Pro | Tyr | Leu | Phe | Gln | |
| | 175 | | | | | 180 | | | | | 185 | | | | | |
| aag | tac | gtg | aag | gag | tcc | cat | gga | aag | gac | atc | cgg | gtg | gtg | gtg | gta | 747 |
| Lys | Tyr | Val | Lys | Glu | Ser | His | Gly | Lys | Asp | Ile | Arg | Val | Val | Val | Val | |
| 190 | | | | | 195 | | | | | 200 | | | | | 205 | |
| ggg | ggc | cag | gtc | ata | ggc | tct | atg | ctt | cgc | tgc | tcc | act | gat | gga | cgg | 795 |
| Gly | Gly | Gln | Val | Ile | Gly | Ser | Met | Leu | Arg | Cys | Ser | Thr | Asp | Gly | Arg | |
| | | | 210 | | | | | | 215 | | | | | 220 | | |
| atg | cag | agc | aac | tgc | tct | ctc | ggg | ggc | gtg | ggc | gtc | aag | tgt | ccg | ctg | 843 |
| Met | Gln | Ser | Asn | Cys | Ser | Leu | Gly | Gly | Val | Gly | Val | Lys | Cys | Pro | Leu | |
| | | | 225 | | | | | 230 | | | | | 235 | | | |
| aca | gaa | caa | ggc | aag | cag | ttg | gct | att | cag | gtg | tcc | aac | atc | cta | ggc | 891 |
| Thr | Glu | Gln | Gly | Lys | Gln | Leu | Ala | Ile | Gln | Val | Ser | Asn | Ile | Leu | Gly | |
| | | 240 | | | | | 245 | | | | | 250 | | | | |
| atg | gac | ttc | tgt | ggc | att | gat | ctc | ctt | atc | atg | gac | gat | ggc | tcc | ttt | 939 |
| Met | Asp | Phe | Cys | Gly | Ile | Asp | Leu | Leu | Ile | Met | Asp | Asp | Gly | Ser | Phe | |
| | 255 | | | | | 260 | | | | | 265 | | | | | |
| gtg | gtg | tgt | gag | gca | aat | gct | aat | gtt | ggc | ttc | cta | gcc | ttt | gac | cag | 987 |
| Val | Val | Cys | Glu | Ala | Asn | Ala | Asn | Val | Gly | Phe | Leu | Ala | Phe | Asp | Gln | |
| 270 | | | | | 275 | | | | | 280 | | | | | 285 | |
| gca | tgc | aac | tta | gat | gtg | ggg | ggg | atc | att | gca | gac | tat | acc | atg | tcc | 1035 |
| Ala | Cys | Asn | Leu | Asp | Val | Gly | Gly | Ile | Ile | Ala | Asp | Tyr | Thr | Met | Ser | |
| | | | 290 | | | | | | 295 | | | | | 300 | | |
| ttg | ctg | cca | aat | agg | cag | act | gga | aag | atg | gct | gtc | ctc | cca | gga | ctg | 1083 |
| Leu | Leu | Pro | Asn | Arg | Gln | Thr | Gly | Lys | Met | Ala | Val | Leu | Pro | Gly | Leu | |
| | | | 305 | | | | | 310 | | | | | 315 | | | |
| tcg | agt | cca | agg | gag | aag | aac | gag | ccg | gat | ggc | tgt | gct | tca | gct | cag | 1131 |
| Ser | Ser | Pro | Arg | Glu | Lys | Asn | Glu | Pro | Asp | Gly | Cys | Ala | Ser | Ala | Gln | |
| | | 320 | | | | | 325 | | | | | 330 | | | | |
| gga | gtt | gca | gag | agc | gtc | tat | acc | atc | aac | agt | ggg | tct | acc | tct | agc | 1179 |
| Gly | Val | Ala | Glu | Ser | Val | Tyr | Thr | Ile | Asn | Ser | Gly | Ser | Thr | Ser | Ser | |
| | 335 | | | | | 340 | | | | | 345 | | | | | |

gaa agt gag cct gaa ctg gga gag atc cgg gat tcc tca gca agc aca 1227
 Glu Ser Glu Pro Glu Leu Gly Glu Ile Arg Asp Ser Ser Ala Ser Thr
 350 355 360 365

atg ggg gcc cca ccc tcc atg ctg ccc gaa cct ggc tac aac att aac 1275
 Met Gly Ala Pro Pro Ser Met Leu Pro Glu Pro Gly Tyr Asn Ile Asn
 370 375 380

aac agg att gct tct gag tta aaa ctt aag tga attcctgctt tttggcagca 1328
 Asn Arg Ile Ala Ser Glu Leu Lys Leu Lys
 385 390

tttaaaccac atcctactgc ttccctagta gttttgagtg aataaaaatct ggactaatgt 1388
 gattttcattt gcacagaaac tagaaatccc atctgggcac tcagcatttt ttctaacgat 1448
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 Ile Val Gly Gly His Leu Gly Leu Gln Leu Asn Gln Lys Ala Leu Thr
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 Thr Phe Pro Asp Val Val Leu Val Arg Val Pro Thr Pro Ser Val Gln
 65 70 75 80
 Ser Asp Ser Asp Ile Thr Val Leu Arg His Leu Glu Lys Leu Gly Cys
 85 90 95
 Arg Leu Val Asn Arg Pro Gln Ser Ile Leu Asn Cys Ile Asn Lys Phe
 100 105 110
 Trp Thr Phe Gln Glu Leu Ala Gly His Gly Val Pro Met Pro Asp Thr
 115 120 125
 Phe Ser Tyr Gly Gly His Glu Asp Phe Ser Lys Met Ile Asp Glu Ala
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 Glu Pro Leu Gly Tyr Pro Val Val Val Lys Ser Thr Arg Gly His Arg
 145 150 155 160
 Gly Lys Ala Val Phe Leu Ala Arg Asp Lys His His Leu Ser Asp Ile
 165 170 175
 Cys His Leu Ile Arg His Asp Val Pro Tyr Leu Phe Gln Lys Tyr Val
 180 185 190
 Lys Glu Ser His Gly Lys Asp Ile Arg Val Val Val Val Gly Gly Gln
 195 200 205
 Val Ile Gly Ser Met Leu Arg Cys Ser Thr Asp Gly Arg Met Gln Ser
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 Asn Cys Ser Leu Gly Gly Val Gly Val Lys Cys Pro Leu Thr Glu Gln
 225 230 235 240
 Gly Lys Gln Leu Ala Ile Gln Val Ser Asn Ile Leu Gly Met Asp Phe
 245 250 255
 Cys Gly Ile Asp Leu Leu Ile Met Asp Gly Ser Phe Val Val Cys
 260 265 270
 Glu Ala Asn Ala Asn Val Gly Phe Leu Ala Phe Asp Gln Ala Cys Asn
 275 280 285
 Leu Asp Val Gly Gly Ile Ile Ala Asp Tyr Thr Met Ser Leu Leu Pro
 290 295 300

Asn Arg Gln Thr Gly Lys Met Ala Val Leu Pro Gly Leu Ser Ser Pro
 305 310 315 320
 Arg Glu Lys Asn Glu Pro Asp Gly Cys Ala Ser Ala Gln Gly Val Ala
 325 330 335
 Glu Ser Val Tyr Thr Ile Asn Ser Gly Ser Thr Ser Ser Glu Ser Glu
 340 345 350

 Pro Glu Leu Gly Glu Ile Arg Asp Ser Ser Ala Ser Thr Met Gly Ala
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 <210> 14
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gggc atg gcg cca ccc gcg gcg cct ggc cgg gac cgt gtg ggc cgt gag 169
Met Ala Pro Pro Ala Ala Pro Gly Arg Asp Arg Val Gly Arg Glu
      1             5             10             15

gat gag gac ggc tgg gag acg cga ggg gac cgc aag gcc cgg aag ccc 217
Asp Glu Asp Gly Trp Glu Thr Arg Gly Asp Arg Lys Ala Arg Lys Pro
              20             25             30

ctg gtg gag aag aag cgg cgc gcg cgg atc aac gag agc ctg cag gag 265
Leu Val Glu Lys Lys Arg Arg Ala Arg Ile Asn Glu Ser Leu Gln Glu
              35             40             45

ctg cgg ctg ctg ctg gcg ggc gcc gag gtg cag gcc aag ctg gag aac 313
Leu Arg Leu Leu Leu Ala Gly Ala Glu Val Gln Ala Lys Leu Glu Asn
              50             55             60

gcc gaa gtg ctg gag ctg acg gtg cgg cgg gtc cag ggt gtg ctg cgg 361
Ala Glu Val Leu Glu Leu Thr Val Arg Arg Val Gln Gly Val Leu Arg
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Gly Arg Ala Arg Glu Arg Glu Gln Leu Gln Ala Glu Ala Ser Glu Arg
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Phe Ala Ala Gly Tyr Ile Gln Cys Met His Glu Val His Thr Phe Val
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tcc acg tgc cag gcc atc gac gct acc gtc gct gcc gag ctc ctg aac 505
Ser Thr Cys Gln Ala Ile Asp Ala Thr Val Ala Ala Glu Leu Leu Asn
              115            120            125

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His Leu Leu Glu Ser Met Pro Leu Arg Glu Gly Ser Ser Phe Gln Asp
              130            135            140

ctg ctg ggg gac gcc ctg gcg ggg cca cct aga gcc cct gga cgg agt 601
Leu Leu Gly Asp Ala Leu Ala Gly Pro Pro Arg Ala Pro Gly Arg Ser
              145            150            155

ggc tgg cct gcg ggg ggc gct ccg gga tcc cca ata ccc agc ccc ccg 649
Gly Trp Pro Ala Gly Gly Ala Pro Gly Ser Pro Ile Pro Ser Pro Pro
              160            165            170            175

ggt cct ggg gac gac ctg tgc tcc gac ctg gag gag gcc cct gag gct 697
Gly Pro Gly Asp Asp Leu Cys Ser Asp Leu Glu Glu Ala Pro Glu Ala
              180            185            190

gaa ctg agt cag gct cct gct gag ggg ccc gac ttg gtg ccc gca gcc 745
Glu Leu Ser Gln Ala Pro Ala Glu Gly Pro Asp Leu Val Pro Ala Ala
              195            200            205

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 210 215 220

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 Trp *

cctccctcct cccaggggtt cagatgtggt ggggtagggc cctggaagtc tcccaggtct 909
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 Arg Leu Leu Leu Ala Gly Ala Glu Val Gln Ala Lys Leu Glu Asn Ala
 50 55 60
 Glu Val Leu Glu Leu Thr Val Arg Arg Val Gln Gly Val Leu Arg Gly
 65 70 75 80
 Arg Ala Arg Glu Arg Glu Gln Leu Gln Ala Glu Ala Ser Glu Arg Phe
 85 90 95
 Ala Ala Gly Tyr Ile Gln Cys Met His Glu Val His Thr Phe Val Ser
 100 105 110
 Thr Cys Gln Ala Ile Asp Ala Thr Val Ala Ala Glu Leu Leu Asn His
 115 120 125
 Leu Leu Glu Ser Met Pro Leu Arg Glu Gly Ser Ser Phe Gln Asp Leu
 130 135 140
 Leu Gly Asp Ala Leu Ala Gly Pro Pro Arg Ala Pro Gly Arg Ser Gly
 145 150 155 160
 Trp Pro Ala Gly Gly Ala Pro Gly Ser Pro Ile Pro Ser Pro Pro Gly
 165 170 175
 Pro Gly Asp Asp Leu Cys Ser Asp Leu Glu Glu Ala Pro Glu Ala Glu
 180 185 190
 Leu Ser Gln Ala Pro Ala Glu Gly Pro Asp Leu Val Pro Ala Ala Leu
 195 200 205
 Gly Ser Leu Thr Thr Ala Gln Ile Ala Arg Ser Val Trp Arg Pro Trp
 210 215 220